WHAT IS CLAIMED IS:

1. In a wavelength Division multiplexed optical system, the combination comprising:

a first optical node including a transponder having a test signal generator for generating a test signal, and a monitoring circuit for monitoring a received test signal;

a second optical node including a transponder having a test signal generator for generating a test signal, and a monitoring circuit for monitoring a received test signal;

a light path interconnecting said first and second optical nodes,

wherein said light path is tested by the monitoring circuit of the transponder of said second optical node by monitoring a quality of the test pattern generated by the test signal generator of the transponder of said first optical node.

2. The optical system of Claim 1, wherein the quality monitored is a bit error rate.

3. The optical system of Claim 1, wherein the test signal is a valid client signal.

4. The optical system of Claim 3, wherein the valid client signal is one of a valid SONET frame, an ATM cell and an IP packet.

5. The optical system of Claim 1, wherein the test signal is a valid maintenance signal.

6. The optical system of Claim 5 wherein the valid maintenance signal is a SONET alarm indication signal.

7. The optical system of Claim 1, wherein said light path is tested prior to connecting client equipment to said first and second optical nodes.

8. The optical system of Claim 1, wherein the test signal generated by the test signal generator of the transponder of said first optical node includes predetermined errors, and the monitoring circuit of the transponder of said second optical node monitors the received test signal.

9. The optical system of Claim 1, including a client equipment connected to said first optical node, said client equipment transmitting/receiving signals to/from said first optical node, wherein said first optical node includes blocking means for blocking transmitting/receiving signals to/from said client equipment when the test signal generator of the transponder of said first optical node generates a test signal.

10. An optical line terminal comprising:

a transponder having at least a transmitter and a receiver, with a test signal generator connected to the transmitter for generating a test signal for the transmitter to transmit at an output thereof, and a monitoring circuit connected to the receiver for

monitoring a received test signal at an input of the receiver; and

switch means for connecting the output of the transmitter to the input of the receiver to test a quality of the test signal transmitted by the transmitter and received by the receiver.

11. A wavelength division multiplexed optical system, comprising:

an optical node including a transponder having a test signal generator for generating a test signal;

a client equipment including a monitoring circuit for monitoring a received test signal; and

an optical interface connecting said optical node and said client equipment,

wherein said optical interface is tested by monitoring a quality of the test signal generated by the test signal generator of said optical node and received by the monitoring circuit of said client equipment.

12. An optical line terminal, comprising:

a line interface having a line side transmit port for transmitting an optical signal and a line side receiver port for receiving an optical signal;

a port side interface having a port side transmit port for transmitting an optical signal and a port side receive port for receiving an optical signal; and

a transponder connected to the line side transmit port and the line side receive port of said line side interface, and also connected to the port side transmit

port and port side receive port of said port side interface, said transponder including a loopback mechanism for one of looping back the received optical signal at the line side receive port to the line side transmit port and looping back the received optical signal at the port side receive port to the port side transmit port.

13. An optical node comprising:

a line side transmit interface for transmitting one or more of a plurality of optical wavelengths;

an associated line side receive interface for receiving one or more of a plurality of optical wavelengths; and

a loopback mechanism for looping back one or more of the plurality of optical wavelengths received at said line side receive interface to the line side transmit interface without converting the optical wavelengths to electrical form.

14. An optical node comprising:

a first optical line terminal having an all-optical-pass-through port side interface including a plurality of port side transmit ports, each for transmitting a different one of a plurality of optical wavelengths, and a plurality of associated port side receive ports, each for receiving the different one of the plurality of optical wavelengths, said first optical line terminal including at least one transponder connected to a predetermined one of said transmit ports and also connected to the associated one

of said port side receive ports, the one transponder including a loopback mechanism for looping back the received optical wavelength at the associated one of said port side receive ports to the predetermined one of said port side transmit ports;

a second optical line terminal having an all-optical-pass-through port side interface including a plurality of port side transmit ports, each for transmitting a different one of the plurality of optical wavelengths, and a plurality of associated port side receive ports, each for receiving the different one of the plurality of optical wavelengths, said second optical line terminal including at least one transponder connected to a predetermined one of said port side transmit ports and also connected to the associated one of said port side receive ports, the one transponder including a loopback mechanism for looping back the received optical wavelength at the associated one of said port side receive ports to the predetermined one of said port side transmit ports; and

connecting means for optically connecting at least one of the port side transmit ports of said first optical line terminal to at least one of the port side receive ports of said second optical line terminal, and for connecting the associated port side receive port of said first optical line terminal to the associated transmit port of the second optical line terminal.

15. An optical network comprising:

n, where n is an integer, optical nodes, including a source node for providing an optical signal, and a destination node for receiving the optical signal;

optical fibers for optically connecting said n nodes, and for carrying the optical signal from said source node to said destination node via intermediate nodes; and

means for looping back the optical signal at anyone of said n nodes without converting the optical signal to an electrical signal.

16. An optical node comprising:

a line interface having a line side transmit port for transmitting an optical signal and a line side receive port for receiving an optical signal;

at least one transponder having a transmit output terminal for transmitting an optical signal and a receive input terminal for receiving an optical signal; and

at least one optical switch having four terminals, with the first terminal connected to the line side receive port and the second terminal connected to the line side transmit port of said line interface, and the third terminal connected to the receive input terminal and the fourth terminal connected to the transmit output terminal of said transponder, said one optical switch having a normal state in which a first optical path is provided from the first terminal to the third terminal of said one optical switch to provide an optical connection from the line side receive port of said line interface to the receive input terminal of

said transponder, and a second optical path is provided from the second terminal to the fourth terminal of said optical switch to provide an optical connection from the transmit output port of said transponder to the line side transmit port of said line side interface, said one optical switch having a loopback state in which a third optical path is provided from the first terminal to the second terminal of said one optical switch to loopback the optical signal received at the line side receive port to the line side transmit port of said line interface, and a fourth optical path is provided from the third terminal to the fourth terminal of said one optical switch to loopback the optical signal transmitted from the transmit output terminal to the receive input terminal of said transponder.

17. An optical node comprising:

a line interface having a line side transmit port for transmitting an optical signal and a line side receive port for receiving an optical signal;

at least one transponder having a transmit output terminal for transmitting an optical signal and a receive input terminal for receiving an optical signal; and

at least one optical switch for looping back the optical signal received at the line side receive port to the line side transmit port of said line side interface, and for looping back the optical signal transmitted from the transmit output terminal to the receive input terminal of said transponder, said optical switch having first and second switch terminals

connected to the line side transmit port and line side receive port, respectively, of said line interface, and having third and fourth switch terminals connected to the transmit output terminal and the receive input terminal, respectively, of said transponder.

18. An optical node comprising:

a multiplexer/demultiplexer for multiplexing/demultiplexing n optical wavelengths; and

optical loopback means for looping back at least one of the n optical wavelengths from the demultiplexer to the multiplexer.

19. The optical node of Claim 18, wherein said optical loopback means comprises an optical switch.

20. The optical node of Claim 18, wherein said optical loopback means loops back each of the n optical wavelengths from the demultiplexer to the multiplexer.

21. The optical node of Claim 20, wherein said optical loopback means comprises n optical switches.

22. The optical node of Claim 19, wherein said optical switch is also used to optically drop or pass-through the one optical wavelength.

23. The optical node of Claim 21, wherein said n optical switches are also used to optically drop or pass-through the n optical wavelengths.

24. a multiplexer/demultiplexer for multiplexing/demultiplexing n optical wavelengths;

a port side interface having n port side transmit ports for respectively transmitting the n optical wavelengths and n associated port side receive ports for receiving at least one of the n optical wavelengths; and

optical loopback means for looping back the at least one of the n optical wavelengths from one of the port side transmit ports to the associated one of the port side receive ports.

25. The multiplexer/demultiplexer of Claim 24, wherein said optical loopback means comprises an optical switch.

26. The multiplexer/demultiplexer of Claim 24, wherein said optical loopback means loops back each of the n optical wavelengths from the respective n port side transmit ports to the associated n port side receive ports.

27. The multiplexer/demultiplexer of Claim 26, wherein said optical loopback means comprises n optical switches.

28. The multiplexer/demultiplexer of Claim 25, wherein said optical switch is also used to optically drop or pass-through the one optical wavelength.

29. The of multiplexer/demultiplexer Claim 27, wherein said n optical switches are also used to optically drop or pass-through the n optical wavelengths.